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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/697,001	10/31/2003	Kyoko Matsuda	0033-0907P	8244
2292	7590	12/09/2005	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			VAN ROY, TOD THOMAS	
			ART UNIT	PAPER NUMBER
			2828	

DATE MAILED: 12/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No. 10/697,001	Applicant(s) MATSUDA ET AL.	
	Examiner Tod T. Van Roy <i>[Signature]</i>	Art Unit 2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 8-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>09/31/2003</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Election/Restrictions

Applicant's election with traverse of the first invention in the reply filed on 10/17/2005 is acknowledged.

This is not found persuasive because the denoted species would require a different field of search, necessitating the need to search in different classes/subclasses, presenting a serious burden to the examiner.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 2 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 2 states a limitation, the active layer having two light amplifying regions formed on lateral sides of the saturable absorber region, which is not supported by the elected

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Species which relates to figures 1-6. This limitation is more properly referred to fig.9, which was not part of the chosen Species.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Jacquet et al. (US 5283799).

With respect to claim 1, Jacquet discloses a semiconductor laser reducing feedback-induced noise comprising: an active layer having a light amplifying region and a saturable absorber region (col.2 lines 60-66, col.6 lines 10-13) formed to allow said semiconductor laser to be in a bistable state (col.1 lines 16-17), an electrode of a first polarity (fig.1 E1), and an electrode of a second polarity provided in relation to said electrode of the first polarity (fig.1 #2), at least one of said electrode of the first polarity and said electrode of the second polarity is divided to allow a current to be injected independently into said light amplifying region and said saturable absorber region (col.3 lines 4-10, 20-25).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 3, 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacquet in view of Kappeler (US 6205161).

With respect to claims 3 and 5, Jacquet teaches the bistable device as outlined in the rejection to claim 1, including the DC driving of the device, but does not disclose driving the device using a modulated signal with a superimposed noise current. Kappeler teaches a method for operating a laser diode wherein a modulated current signal superimposed with a noise current (col.8 lines 36-40, col.8-9 lines 66-5) having a random intensity change (col.8 lines 38-39, col.9 lines 60-65) is used to drive the device. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the device of Jacquet with the driving current of Kappeler in order to suppress the occurrence of mode hopping (col.8 lines 61-65).

With respect to claim 6, Jacquet and Kappeler teach the bistable device as outlined in the rejection to claim 3, and Jacquet further teaches the ratio of the absorber to be between 50% and 1% of the length of the resonator (fig.1 S2, col.6 lines 25-37)

With respect to claim 7, Jacquet and Kappeler teach the bistable device as outlined in the rejection to claim 3, but do not teach the difference between the maximum and minimum value of the noise current to be at most an amplitude of the modulation current. It would have been obvious to one of ordinary skill in the art at the time of the invention to sustain the noise current amplitude below that of the modulation current as doing otherwise would, in essence, change the noise current into the modulation current and vice versa (the noise current would then essentially be responsible for driving the device, with a small modulation signal added to it).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jacquet and Kappeler in view of Suzuki et al. (US 5394260).

With respect to claim 4, Jacquet and Kappeler teach the bistable device as outlined in the rejection to claim 3, including the use of a modulated driving current, but do not teach the modulated current to have a rectangular wave. Suzuki teaches a semiconductor laser incorporated with an absorber wherein a modulated rectangular wave is used to drive the device (col.8 lines 1-4). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the bistable, modulated device of Jacquet and Kappeler with the rectangular wave of Suzuki in order to

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generate a pulse with fast rise and fall times (Suzuki, col.8 lines 5-6) and output pulses from the device which more closely resemble logic ones and zeroes.

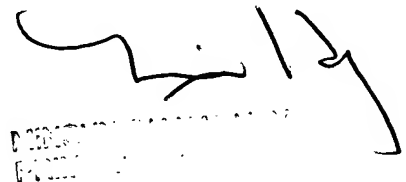
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tod T. Van Roy whose telephone number is (571)272-8447. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on (571)272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TVR

A handwritten signature in black ink, appearing to be 'TVR', is written over a faint, rectangular, light-colored stamp or watermark.